

**What is Claimed:**

1. A system providing control over manufacturing resources of a discrete manufacturing environment, comprising:
  - a data store, the data store having manufacturing rules for the discrete manufacturing environment; and
  - a manufacturing control engine, the control engine cooperating with the data store to obtain manufacturing rules for processing to generate manufacturing control instructions.
2. The system as recited in claim 1, further comprising a communications network, the communications network cooperating with the manufacturing control engine to communicate data representative of discrete manufacturing control information to cooperating manufacturing resources.
3. The system as recited in claim 2, wherein the communications network comprises any of: local area network, wide area network, extranet, intranet, peer-to-peer networks, and the Internet.
4. The system as recited in claim 3, wherein the communications network is wireless and/or fixed wire.
5. The system as recited in claim 1, wherein the manufacturing control engine comprises a computing application having one or more instruction sets to instruct a computing environment to process data representative of discrete manufacturing rule information.
6. The system as recited in claim 5, wherein the manufacturing rule information comprises any of: manufacturing resource capacity information, time for manufacturing information, manufacturing resource specifications, raw material information, and manufacturing environment information.

7. The system as recited in claim 1, wherein the manufacturing control engine cooperates with a plurality of manufacturing resources to communicate control information for use in one or more manufacturing processes.
8. The system as recited in claim 8, wherein the manufacturing control engine receives data from additional control resources comprising any of manual data, manufacturing optimization information, and planning information to generate at least one instruction set to cooperating manufacturing resources for execution.
9. The system as recited in claim 8, wherein the manufacturing control engine utilizes an agent that executes one or more of artificial intelligence techniques to obtain the additional control resource data.
10. The system as recited in claim 1, wherein the manufacturing control instructions is communicated to intelligent devices cooperating with at least one manufacturing resource.
11. The system as recited in claim 8, wherein the additional control resource data is provided to the manufacturing control engine over a communications infrastructure.
12. A method for generating manufacturing control instructions for manufacturing resources of a manufacturing environment comprising the steps of:
  - receiving request for the manufacture of a product or product component; and
  - processing the request by a manufacturing control engine, the manufacturing control engine having at least one instruction set to process data according to predefined manufacturing rules.
13. The method as recited in claim 12, wherein the further comprising communicating the processed data to at least one cooperating manufacturing resource.

that additional instructions are not required, processing proceeds to block 480 and proceeds there from.

[0030] It is appreciated that blocks 450, 460, 470, 480 and their associated connectors are presented in dashed lines. This is to illustrate the notion that the present invention may operate inclusive and/or exclusive of such steps when realizing intelligent control over machines in a discrete manufacturing environment. In the instance that such steps are excluded, the present invention engages in local control (i.e. control within a particular manufacturing facility) receiving no external inputs to provide rules and instructions for control, rather using data local to the machines of a particular manufacturing facility control decision making processes. Alternatively, the present invention contemplates processing involving the use of external influences (i.e. central data) when performing control decision making processes. Such processing would include blocks 450, 450, 470, 480 and their associated connectors.

[0031] In sum, the herein described systems and methods provide intelligent control over machines in a discrete manufacturing environment. It is understood, however, that the invention is susceptible to various modifications and alternative constructions. There is no intention to limit the invention to the specific constructions described herein. On the contrary, the invention is intended to cover all modifications, alternative constructions, and equivalents falling within the scope and spirit of the invention.

[0032] It should also be noted that the present invention may be implemented in a variety of computer environments (including both non-wirless and wireless computer environments), partial computing environments, and real world environments. The various techniques described herein may be implemented in hardware or software, or a combination of both. Preferably, the techniques are implemented in computer programs executing on programmable computers that each include a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), at least one input device, and at least one output device. Program code is applied to data entered using the input device to perform the functions described above and to generate output information. The output information is applied to one or more output devices. Each program is preferably implemented in a high level procedural or

object oriented programming language to communicate with a computer system. However, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language. Each such computer program is preferably stored on a storage medium or device (e.g., ROM or magnetic disk) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described above. The system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

[0033] Although an exemplary implementation of the invention has been described in detail above, those skilled in the art will readily appreciate that many additional modifications are possible in the exemplary embodiments without materially departing from the novel teachings and advantages of the invention. Accordingly, these and all such modifications are intended to be included within the scope of this invention. The invention may be better defined by the following exemplary claims.

14. The method as recited in claim 13, wherein the communicating step comprises establishing communications over a communications network with the manufacturing resource.
15. The method as recited in claim 14, further comprising retrieving from a cooperating data store data manufacturing rules for the manufacturing environment.
16. The method as recited in claim 15, further comprising receiving data from cooperating additional control resources comprising any of manual data, manufacturing optimization application, and planning systems for processing and to generate the manufacturing instructions.
17. A computer readable medium having computer readable instructions to instruct a computer to perform the method as recited in claim 12.
18. A method to generate manufacturing control instructions for manufacturing resources comprising:
  - providing a manufacturing control engine, the manufacturing control engine capable of receiving and processing data to generate manufacturing control instructions.
19. The method as recited in claim 18 further comprising, providing a data store, the data store cooperating with the manufacturing control engine to manufacturing rules and manufacturing environment conditions.
20. The method as recited in claim 18 further comprising, providing a communications network, the communication network cooperating with manufacturing control engine to communicate manufacture control instructions to cooperating manufacturing resources.
21. In an information technology system providing communication of data among a global power distribution equipment manufacturer enterprise, a module manufacturing control comprising:

a communications network, the communication network capable of receiving and transmitting data representative of power distribution equipment manufacturing;

a data store, the data store having data representative of power distribution equipment manufacturing ;

a manufacturing control applet, the manufacture control applet cooperating with the communications network and the data store to receive data representative of power distribution manufacturing data, comprising any of power distribution system market information, design information, facilities capacity, planning, and materials information, for processing, such processing comprising any of generating manufacturing control instructions to control at least one cooperating manufacturing resource, wherein the applet communicates with the manufacturing resource through an intelligent device capable of monitoring the manufacturing resource to obtain operational information for communication back to the manufacturing control applet, and wherein the manufacturing control applet uses the operational information to identify additional instructions for execution by the cooperating manufacturing resource.

22. The system as recited in claim 21, wherein the data store has data representative of local and remote manufacturing resources and enterprise data comprising any of planning information, project information, and manufacturing optimization information.